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10/017,336	12/13/2001	Bill Peck	10010408	6785

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EXAMINER

LAIR, DONALD M

ART UNIT PAPER NUMBER

2858

DATE MAILED: 06/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/017,336

Applicant(s)

PECK, BILL

Examiner

Donald M Lair

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2003 (Amendment A).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 15 – 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al. (US 2003/0008413).

3. In regards to Claim 15, Kim et al. disclose a method of detecting the presence of an analyte in a sample comprising contacting a biopolymeric array having a complementary binding pair member (Paragraph 88) that specifically binds to said analyte, with a sample suspected of comprising said analyte under conditions sufficient for binding of said analyte to a biopolymeric ligand on the array to occur, and detecting the presence of binding complexes on the surface of the array to detect the presence of the analyte in the sample (Claim 34).

4. In regards to Claim 16, Kim et al. disclose transmitting a result from the detecting step (Paragraph 91, lines 1 – 4).

5. In regards to Claim 17, Kim et al. disclose communicating the result to a remote location (Paragraph 91, lines 1 – 4).

6. In regards to Claim 18, Kim et al. disclose a method as applied to Claim 15 wherein data regarding a test sample is collected. It is inherent that there must be a way to receive data

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representing a result of the applied test in order to analyze the outcome otherwise the system would serve no function.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1 – 14 and 19 – 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schleifer et al. (US-6,242,266) in view of Gibson et al. (US-6,119,506).

9. In regards to Claim 1, Schleifer et al. disclose an apparatus comprising a body defining a chamber having first and second ports (Fig. 6, element 208), a first valve (Fig. 6, element 114; Column 10, lines 1 – 3) in communication with the first port, a second valve (Fig. 6, element 86; Column 10, lines 9 – 11) in communication with the second port, and a dry gas source (Fig. 6, element 88; Column 10, lines 6 – 7). The chamber is apart from an environment to be sampled for moisture by the capacitance sensor probe, wherein the environment to be sampled is the reagents used, and wherein the sampling conduit provides fluid communication through the first port between the chamber and the environment (Column 11, lines 16 – 33). Schleifer et al. teach that reagents typically used in the preparation of biopolymer arrays are water sensitive and that the presence of moisture should be eliminated or minimized; however, the reference fails to teach using a capacitive sensor probe in the chamber.

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10. Gibson et al. teach using capacitive probes (Fig. 1, elements 102 and 104; Column 8, lines 47 – 51) in a closed chamber (Fig. 1, element 90; Column 8, lines 1 – 2) to detect the moisture content of the sample flowing across the probes (Column 9, lines 30 – 33).

11. Since Schleifer et al. teach that water can adversely affect the materials used in the production of biopolymer arrays and Gibson et al. teach a method of monitoring the moisture content of materials, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the chamber of the apparatus disclosed by Schleifer et al. to include a capacitance sensor probe as disclosed by Gibson et al. for the purpose of monitoring the moisture content of the current sample.

12. In regards to Claim 2, Schleifer et al. in view of Gibson et al. disclose positioning the valves to allow dry gas to flow through the chamber in one state (Schleifer et al., Column 3, lines 8 – 13 and 59 – 66) and to also allow a sample to flow through the chamber in another (Schleifer et al., Column 7, lines 27 – 31; Column 8, lines 13 – 14).

13. In regards to Claim 3, Schleifer et al. in view of Gibson et al. teach placing a vacuum pump in fluid communication with the chamber to draw sample material into the chamber (Schleifer et al., Column 11, lines 16 – 27; Column 7, lines 27 – 31).

14. In regards to Claim 4, Schleifer et al. in view of Gibson et al. teach using a venturi device as the vacuum pump (Schleifer et al., Column 7, lines 27 – 33).

15. In regards to Claim 5, Schleifer et al. in view of Gibson et al. teach driving the venturi device with a dry gas source (Schleifer et al., Abstract, lines 15 – 17).

16. In regards to Claim 6, Schleifer et al. in view of Gibson et al. does not teach placing the ports of Claim 1 in an orthogonal arrangement, but does teach placing a third port (Schleifer et

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al., Column 11, lines 20 – 27) orthogonal to the first and second ports. Further, the third port disclosed by the reference is responsible for delivering reagents to the head similar to port (8) of the application. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus disclosed by Schleifer et al. by placing the ports in an orthogonal arrangement for the purpose of drawing fluid in an upstream direction into the chamber.

17. In regards to Claim 7, Schleifer et al. in view of Gibson et al. do not teach using three-way valves in conjunction with two-way valves in the configuration disclosed by the applicant. However, the applicant uses the three-way valves for the purpose of being able to use a single venturi pump for drawing both dry gas and samples through the chamber. The Schleifer et al. reference discloses drawing both dry gas and samples through the chamber but teach using two dry gas and venturi sources (Schleifer et al., Column 11, lines 25 – 27), therefore the apparatus disclosed by the applicant is functionally identical to the valve/pump system disclosed by Schleifer et al. and is not patentable over the prior art of record.

18. In regards to Claim 8, Schleifer et al. in view of Gibson et al. teach flowing dry gas through the chamber to purge the area of undesired components, especially moisture (Schleifer et al., Column 3, lines 8 – 13 and 59 - 66). The modified invention applied to Claim 1 has capacitance sensors in the chamber, thus it is apparent that the dry gas used for purging the chamber of moisture will further purge the probes of moisture as well. The reference does not explicitly teach stopping the flow of dry gas through the chamber; however the disclosure makes it quite apparent that the gas is used to clear the chamber of any moisture prior to the process of drawing reagents in, therefore there is no question that the flow of dry gas must be terminated

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before any sample is introduced. The reference describes flowing sample reagents into the chamber (Schleifer et al., Column 11, lines 29 – 33), and thus also over the capacitance sensors of the modified invention, and from this it is clear that the reagents, which are drawn from a synthesis environment, are stored separately from the chamber and therefore the capacitance sensor.

19. In regards to Claim 9, Schleifer et al. in view of Gibson et al. teach the importance of keeping the reagents out of contact with moisture and further purging the chamber of moisture with a flow of dry gas. Gibson et al. teach placing the capacitive sensors in an insulated chamber. From these disclosures it would have been obvious to one of ordinary skill in the art at the time the invention was made that is important to minimize all reagent contact with moisture, and the modified invention as applied to Claim 1 does in fact isolate the capacitance sensors in the presence of dry gas for the purpose minimizing the amount of moisture in the chamber.

20. In regards to Claim 10, Schleifer et al. in view of Gibson et al. teach using negative pressure created by a venturi pump to draw sample through a flow-cell (Schleifer et al., Column 2, lines 55 – 60; Column 3, lines 8 – 10; Column 4, lines 13 – 15).

21. In regards to Claim 11, the apparatus disclosed by Schleifer et al. is used to produce biopolymers (Schleifer et al., Column 1, lines 26 – 27; Column 2, lines 36 – 38).

22. In regards to Claim 12, Schleifer et al. in view of Gibson et al. disclose producing a nucleic acid (Schleifer et al., Column 6, lines 14 – 21).

23. In regards to Claims 13 and 14, Schleifer et al. in view of Gibson et al. disclose producing a biopolymer array (Schleifer et al., Column 1, lines 26 – 27; Column 2, lines 36 – 38; Column 8, lines 33 – 34).

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24. In regards to Claim 19, Schleifer et al. in view of Gibson et al. disclose a chamber containing a capacitance sensor probe (Gibson et al., Fig. 1, elements 90, 102, and 104) and a dry gas source connected to a venturi device which produces a negative pressure within the chamber (Schleifer et al., Column 2, lines 55 – 60; Column 3, lines 8 – 10; Column 4, lines 13 – 15) to provide a flow of dry gas through the chamber (Schleifer et al., Column 3, lines 59 – 66). The chamber is apart from an environment to be sampled for moisture by the capacitance sensor probe, wherein the environment to be sampled is the reagents used, and wherein the sampling conduit provides fluid communication through the first port between the chamber and the environment (Schleifer et al., Column 11, lines 16 – 33).

25. In regards to Claim 20, Schleifer et al. in view of Gibson et al. disclose as applied to Claim 19 wherein the system is also configured to draw a sample gas into the chamber using negative pressure (Schleifer et al., Column 2, lines 55 – 60; Column 3, lines 8 – 10; Column 4, lines 13 – 15).

26. In regards to Claim 21, Schleifer et al. in view of Gibson et al. teach driving the venturi device with a dry gas source (Abstract, lines 15 – 17).

Response to Arguments

27. Applicant's arguments filed 04/29/03 regarding Claim 15 have been fully considered but they are not persuasive.

28. In response to the Applicant's statements regarding the §102(e) rejection of Claim 15, since the specification of the present application states that "the invention is advantageously used in any number of biopolymer array production procedures" (Paragraph 28) the Examiner respectfully asserts that the part of the preamble which incorporates Claim 14 fails to "give life,

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meaning, and vitality' to the claim" and is therefore not given patentable weight (MPEP 2111.02; Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999); Kropa v. Robie, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951)).

29. In response to the Applicant's statements regarding the §103(a) rejection of Claims 1 – 14 and 19 – 21, the rejection has been clarified to more precisely address the Applicant's concerns and the newly added limitations. Specifically, Schleifer et al. clearly disclose the chamber and synthesis environment being apart from each other (Fig. 4; Column 7, lines 14 – 35). The Examiner disagrees with the assertion that neither Schleifer et al. or Gibson et al. disclose a sampling conduit in fluid communication through a port of the chamber and the environment to effect sampling, this arrangements can be found at Schleifer et al., Column 11, lines 16 – 33 and Gibson et al., Fig. 1.

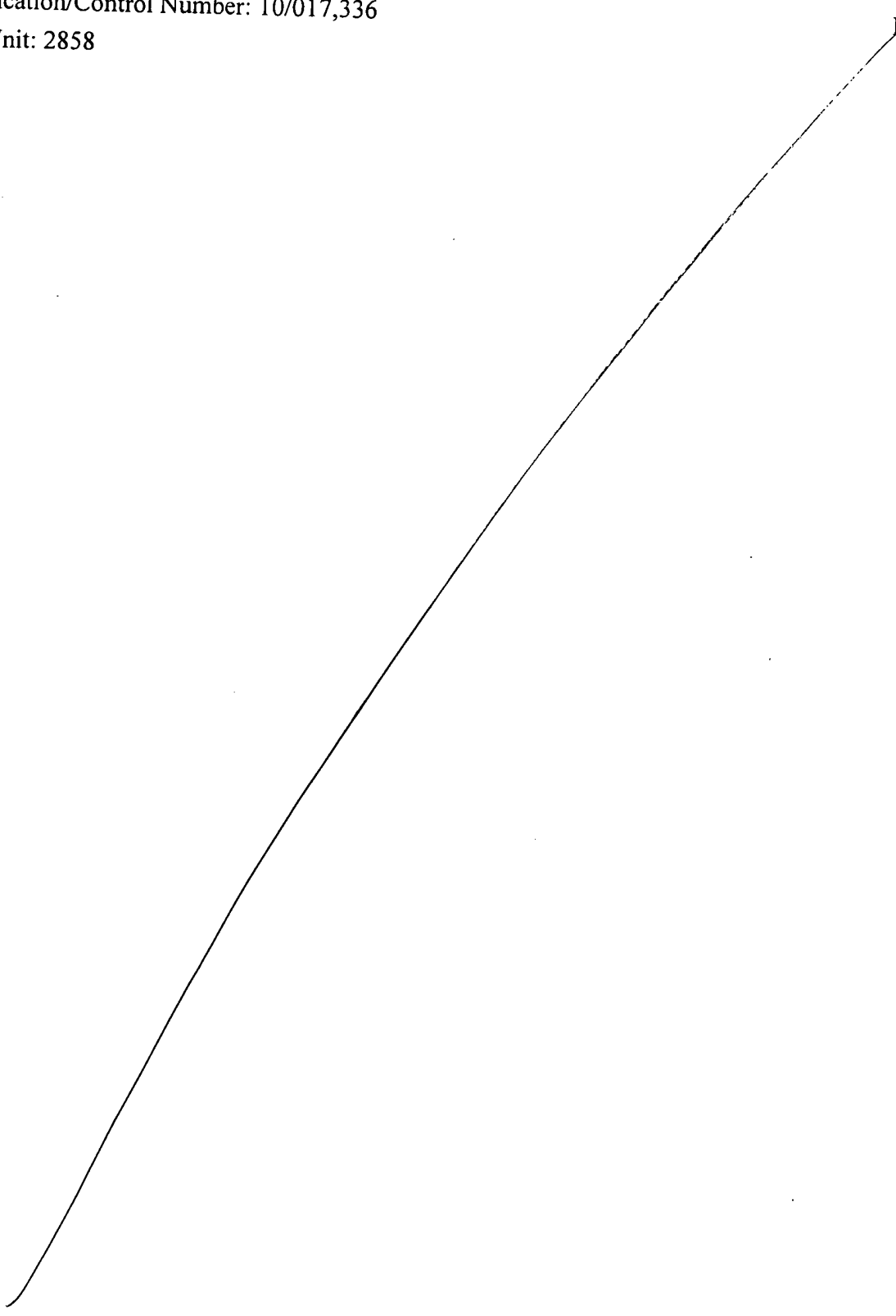
30. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

31. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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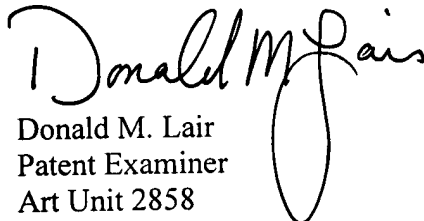



Conclusion

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald M Lair whose telephone number is (703) 305-4450. The examiner can normally be reached on Monday - Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (703) 308-0750. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1436.


Donald M. Lair
Patent Examiner
Art Unit 2858
May 28, 2003


N. Le
Supervisory Patent Examiner
Technology Center 2800